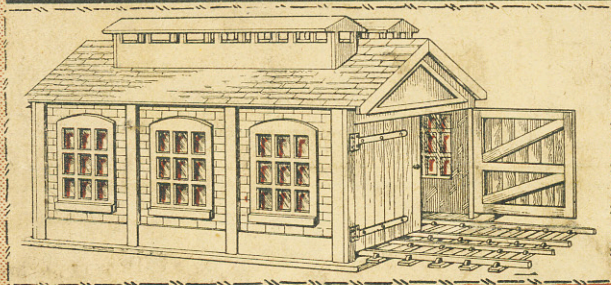


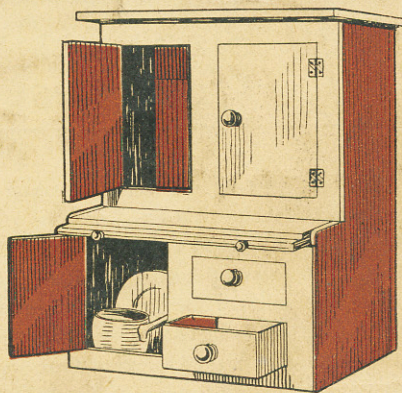
Hobbies

WEEKLY

Model Engine Shed!



Dolls Kitchen Dresser



Easter Novelties!



April 13th. 1935

2^D

Vol. 80. No. 2060

THE FRETWORKER'S AND
HOME CRAFTSMAN'S JOURNAL

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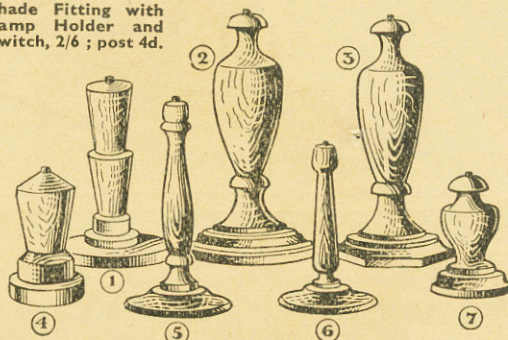
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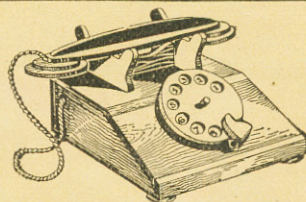
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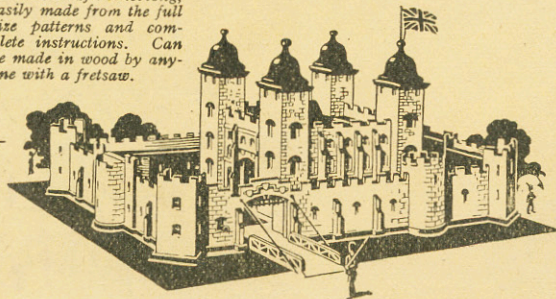
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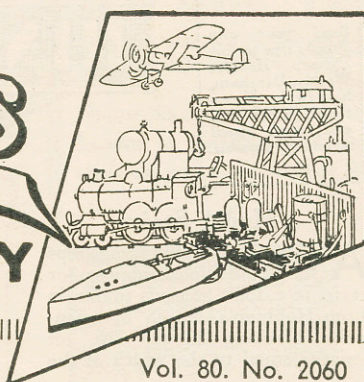
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Hobbies

WEEKLY



April 13th. 1935

Letters should be addressed to
The Editor, Hobbies Weekly,
Dereham, Norfolk.

Vol. 80. No. 2060

EVERY reader, I know, will be delighted with the Easter Egg novelties presented with this issue. Having purposely brought this out well before Easter it gives you plenty of time to make quite a lot up, to give your little friends or to sell. They are easily made from odd pieces of wood and look well painted in brilliant colours of enamel.

THE Index for Vol. 79, which ended in March is now available for 4½d. post free. It is very complete and covers all the subjects and articles in these pages during the past six months. Not only is it an excellent reference list, but will also often suggest something to undertake when you are wanting a job to do.

NOTES of the WEEK

*Easter Novelties—Usefulness of
An Index—Work in School—A
Caravan Tour — For Crane
Builders — Letchworth Hobbies
Club.*

BOYS at the Horwich Junior Technical School, near Bolton, can say they really enjoy their lessons. The ordinary curriculum of schooling is gone through, but instead of languages, they are given two half days a week in an up-to-date engineering shop in the school basement. Their headmaster, Mr. E. Blakemore, believes in allowing the boys to put into actual practice what they learn in the classroom, and the school is turning out some clever embryo engineers. Most of the boys from the school find employment at the Horwich Locomotive Works, for which their training at the school particularly adapts them. The picture shows us some budding engineers at work in the school workshop.

A TRAILER-CARAVAN trip from Toulon in France to Java may seem a bit more than most people would

care to tackle for a summer tour, but Mr. and Mrs. Schultz, with their three children ages 3, 5 and 7 respectively, have just returned to England from such a journey. They spent several months on the way, and, among other adventures, were bogged in Bosnia, and twisted in Turkey, besides being sunburned in Syria, pestered in Persia, and inspected almost out of their wits in India! Their English built trailer caravan is on show, together with a unique collection of photographs and news-cuttings from the countries traversed, at the big camping exhibition now at the Imperial Institute, South Kensington, London.

THOSE who are making the Titan Crane model, or any similar article

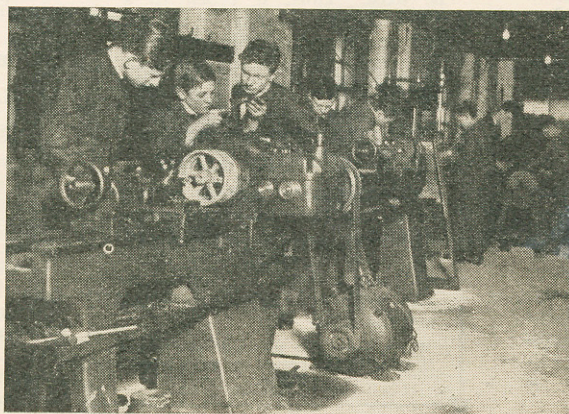
which has to revolve, will be interested in a ball-bearing metal turntable specially suitable for the purpose. The cost is only 1/6 (postage 4d.), and can be obtained from any Hobbies Branch.

A LIVE Hobbies Club is now running at Letchworth, Herts., where D. J. Knowles has a keen and lively set of workers under him. The lads meet in a School Science room and pay a penny a week towards general expenses. They are a happy band of enthusiasts and have done

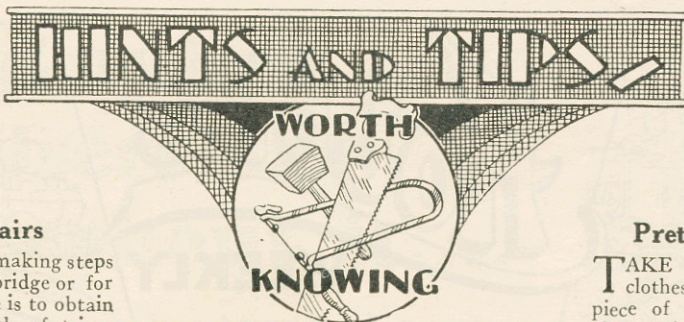
enough work to pay for their requirements and still have some money in hand. Splendid!

EVERY reader with a camera should take note of the Photographic Competition which is running now every month and throughout the summer.

The Editor



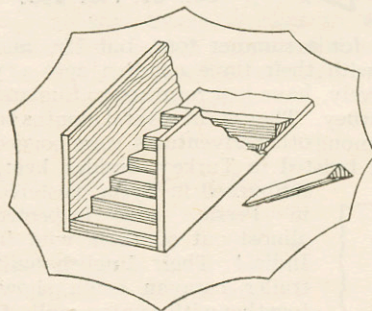
Send your own simple tips to The Editor, Hobbies Weekly, Dereham, Norfolk. Keep them short and add rough pencil sketches if possible.



For original Tips published the sender will receive one of Hobbies Self-filling Fountain Pens. We cannot acknowledge or print all tips sent in.

Model Stairs

A SIMPLE way of making steps for a model footbridge or for stairs in a doll's house is to obtain from Hobbies a length of triangular blocking fillets, cut off lengths equal to the width of the



bridge or stairs, where they may be stuck on. Thin plywood is used to glue them on and also for the side pieces.

Holder for Nails

WHILST pulling down an old gramophone an automatic needle cup was found. So, instead of putting needles in, fret nails were used. One has simply to press the top to obtain one nail at a time. These cups can be fixed on the bench and different sized nails put in.

Tent Electric Light

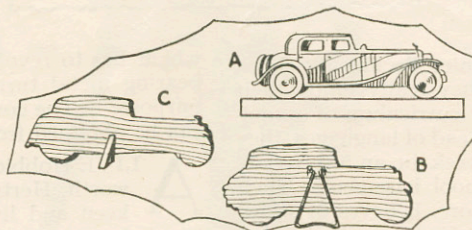
ALL you need is a battery or flashlamp case and battery; some flex, a bulb holder and a small adapter which will cost about three pence. If a battery case is used, a switch must be on it. At one end of the length of flex, the adapter should be fixed and at the other a bulb holder or tester. The adapter or dummy bulb should then be screwed into the flashlamp and the bulb into the holder. The flashlamp or battery case is then used in the ordinary way. For fixing the light in the tent two rings and some cord are needed. Stretch the cord inside across the top of the tent, supported by two rings, one at the top of each pole. The light can be placed on this cord at any position desired, the flex going along the cord and down the pole to the top of the bed where the flashlamp case is attached.

To Keep off Rats

TO prevent rats from eating leather, make a paste of 1 part of verdigris and 2 parts of olive oil, and rub it well into the leather. This paste is poisonous and acts as a preservative.

Car Cut-Outs

HERE is a tip for the handyman who takes either the "Motor" or "Autocar," papers. First cut-out suitable views of different makes of cars which have a plain side view. Then glue them on thin wood (plywood preferably, because of its strength) and when dry cut them out with a fretsaw. To give a nice finish, brush over with clear varnish and attach a small strut (No. 6186 as supplied by Hobbies at 6d. per doz.) on large cut-outs, and a small wooden strut on small



models. If preferred, grooved moulding to suit the wood could be used. Thus, if taken to a garage, a sample may be shown, and an order probably obtained for a number with which to make a window display.

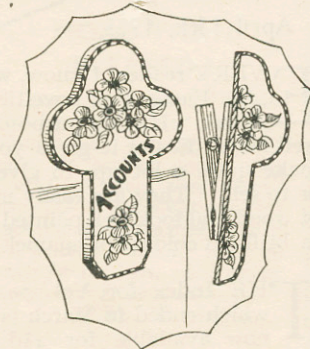
A Five-Minute Teaser !

In a recent storm, a stone bearing the date of the erection of a certain ancient building fell down. Builders came to replace and put it back upside down. Nobody, however, noticed the difference. What was the date ?

Work it out for yourself and check it up with the result in next week's issue.

Pretty Paper Clip

TAKE an ordinary spring clothes clip and fix it to a piece of plywood by means of glue. The plywood can be any



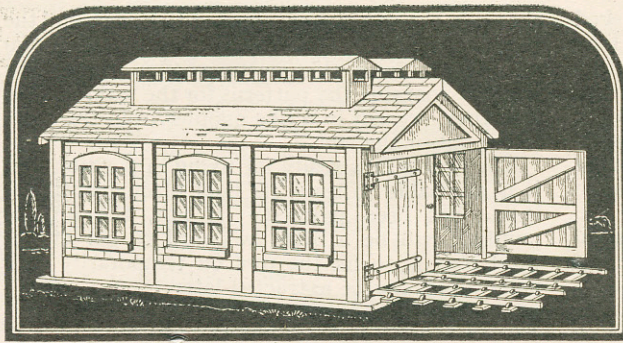
shape but that illustrated is one of the best. After having cut out with the fretsaw, paint a bright design on this in enamel. This, when finished, makes a very good gift for ones friends or an excellent selling line at a bazaar fancy stall.

Fretsaw Case from Pump

FRETWORKERS can easily make a fretsaw case out of an old bicycle pump, with a screw cap. First remove the plunger rod, and then cut the outside case $\frac{1}{4}$ in. longer than the saw blade. Plug the bottom end with a piece of cork, and also plug the screw cap in the same way. There you have an ideal and handy saw case from an old broken cycle pump.

Converting Clock Cases

OLD fashioned wall clocks that will not go can be made into quite modern wall cabinets by removing all the works and adding one or two shelves. Or, as an alternative, they can be made into calendars. Remove the face of the clock and cut a $\frac{1}{4}$ in. strip from inside, just beneath the numbers. On this strip print numbers 1 to 31 and then glue back. The fingers can thus be made to show the date by having the little finger for the days and the large finger for the months or vice versa,



MODEL LOCOMOTIVE SHED

This is the third of the Design Charts for making a model train set in wood. The locomotive and goods wagons were given in our issues dated February 2nd. and March 23rd. The design sheet for this shed is No. 2060.

THIS week we give the third sheet of our series of railway models. In the previous issues we described the building of a goods train in wood, and now we provide the engine shed in the same gauge. The model is a toy on its own, painted and finished complete, and is not intended to form a part of the small gauge railways one can buy.

At the same time, this engine shed is very applicable to a number of railway sets, and readers can house their locomotives quite easily if they make up the patterns shown.

To enable them to do this, the best plan is also to procure the special parcel of wood in which all the parts are cut roughly to the size required, and only need shaping down to the actual dimensions to be put together. This parcel costs only 1/6, and in addition there are two pairs of 1/2 in. brass hinges, eight pieces of glass, each measuring 3 3/8 ins. by 2 1/8 ins.

Dimensions

The picture given of the completed article gives a good idea of the general construction, and the whole of the work is done with the fretsaw and few ordinary tools. The shed is just 13 ins. long, 8 ins. wide and stands 8 ins. high.

No provision is made in the parcel of wood supplied for rails, and no doubt readers will have their own to lay on sleepers so they run straight into the shed, as shown in the picture. For this reason, the doors are cut short at the bottom to allow the gap sufficient for the rails. This point must be remembered in making, because if no rails are intended to be used, the doors can be lengthened to fill up the whole of the aperture in one end.

Make Good Joints

Most of the parts concerned are plain straight edged rectangles, and therefore the greatest point to watch is to see that these edges are cut true. The parts must fit up to each other close with the correct butt joint, and if the fretsaw is run off the

cutting line, the edges must be made straight afterwards.

This can be done by fixing a piece of glasspaper to the bench with drawing pins, and then rubbing the part concerned on to it. Take care to hold it upright, and with the edge flat so it is not rounded off in the movement up and down.

Straight Edges

Another simple remedy is to use a small fretwork plane until a straight even shaving has been taken off the whole length of the upright. In getting out

these parts, too, notice where there are two of each and shape them up so both are alike.

For instance, the two long sides of the shed must be the same, so if one edge is being smoothed down on the glasspaper, as mentioned, you should put both sides together and rub

them on the paper at the same time. This ensures they come down together to the same size when finished. The same applies to the roof slopes, and to the two doors.

Before actually cutting out the doors, ensure that they make a fit between the opening in the end. Cut on the outside of the pattern line all round, and then test them in place. A shaving can be taken off or the edge cleaned down with glasspaper until the two pieces of wood fit comfortably into the proper space.

The construction is

MATERIALS SUPPLIED

For making this Locomotive Shed a parcel of suitable wood is supplied for 1/6 (post 9d.). The fittings necessary are two pairs 1/2 in. Brass Hinges, eight Glasses and two Knobs (No. 49) supplied for 9d. (post 3d.).

A complete parcel of wood and fittings will be sent for 3/- post free.

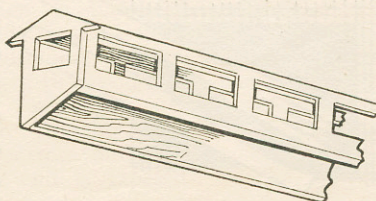


Fig. 1—A detail of the ventilator.

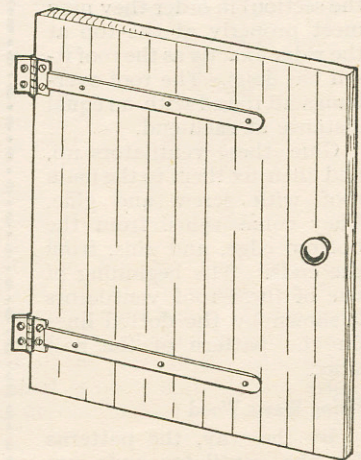


Fig. 2—The finished door.

Model Locomotive Shed—(continued)

straightforward because the main work of the shed is after the style of a box. There are two long sides and two ends fixed down to the baseboard by screws and glue. The floor itself extends evenly beyond the sides and ends, and is a piece of 3/16in. plywood 13ins. long and 8ins. wide. Measure off and mark the positions of the upright sides and ends, and then stand them in place to fix. The sides go between the ends.

Before putting on the sides, however, it is a good plan to fit in the window overlays which are cut from 1/4in. wood, and glued over the openings provided. The actual piece of glass can then be put on the inside, and tiny strips like long match stalks glued round the edges to hold the glass in place.

See the glass is clean before it is put in, because it will be awkward to do this on the outside if left until later. The upright corners of the sides and ends can be strengthened up by little triangular blocking fillets, or a long strip from base to roof if necessary.

The Roof Slopes

The size of the roof is shown as 4 1/2ins. wide and 12 3/4ins. long. Two pieces are required 1/2in. thick, and one long edge of each must be chamfered slightly to allow a good fit at the ridge. Before fitting this roof on, cut and fix the ventilators. These are the long open chimneys seen in the finished drawing, and a detail of one of them is given at Fig. 1. In order to make the top of these square, one side must be longer than the other.

Ventilators

Two of them, therefore, are cut 1 1/2ins. wide, and two others 1in. wide. One of each of these is required with two ends to make up the complete ventilator.

The long sides are glued between the ends, and then two long pieces glued above to form the roof. These slopes are 9 1/2ins. long and 1in. wide, with the top edge chamfered to an angle (indicated by the section) in order they may meet properly at the top at the ridge exactly as the roof itself has done. The roof overhangs all round with an equal distance at each end.

Glue these ventilators up, and then fix them to the main roof with screw and glue. They come 1 1/4ins. from the bottom edge, and 2ins. from the ends. The beginning of one of these roof ventilators is shown by the dotted lines on the pattern of the roof slope.

Using Waste Wood

By the way, the patterns for the ventilator ends are

shown in the window openings of the sides, and the paper can be pasted down complete so the actual part is cut from this waste wood. The fourth window contains the patterns for the window sills, and they are cut in a like manner from the piece taken out of the end.

The roof is now ready for fixing in position, but it is advisable to leave its final placing until the inside has been painted. If not, the interior painting will be a little awkward to get at. A good plan is to fix the roof on temporarily with nails which can be extracted later.

Bracing Frames

The pattern of the open end of the shed gives the two bracing frames, which are glued inside the doors themselves. The whole piece is cut from 3/16in. wood, and, of course, the frames cut out separately. This will provide the main framework of the end, and the two bracing pieces for the doors.

These bracing pieces are really fitted to the inside of the door, the doors themselves being plain pieces of wood 3 1/2ins. wide and 4ins. high. The outline of one is given, and two are required.

The Main Door

The flat door piece is glued to the frame so the edges are flush, and the two complete doors should fit nicely between the stiles of the end. The door is fitted with an imitation T-hinge which is made of a very thin piece of wood, or even thick card, shown on the design sheet, and glued down close to the flange of the hinge.

The 1/2in. hinge itself is screwed on to the flat front of the door 3/4in. from the top and bottom, and against this the imitation plate, just mentioned, is glued and fixed further with three tiny fretnails to give the impression of bolts. A detail of the door is given at Fig. 2 which shows this clearly.

Fittings

It can be seen there too that a little knob (No. 49) is fitted to the inner edge of each door, whilst an imitation match-boarding is made by ruling lines down the door itself either in ink or by cutting them slightly in with a knife or chisel. The doors can be hung in place on the end posts, not forgetting to allow the gap at the bottom for the rails.

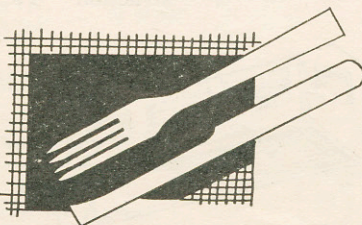
The main work of the building is complete, the additional pieces still to come, being ornamental or realistic overlays on the sides. Before putting them on, it must be decided what finish is going to be applied.

Picnic Knives and Forks

PICNIC Knives and Forks are useful, and can be cut with a fretsaw from small odd pieces of wood.

Sandpaper down the "blade" of the knife. The fork need have but two prongs instead of the usual four, and it would also simplify the cutting.

These picnic implements are very light in weight to carry.



(Continued on page 41)

EASTER EGG NOVELTIES

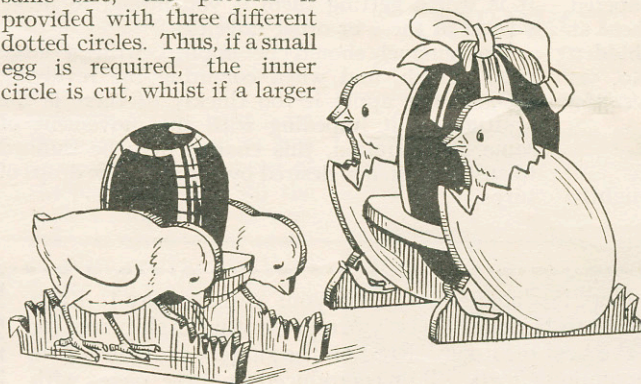
Full size patterns for cutting out in wood all the four novelties illustrated are given on pages 36 and 37. Now is the time to make them for Easter.

A PARTICULARLY pleasing set of Easter Egg novelties is provided for the user of the fret-saw to make up, by the full size patterns given in the centre pages of this issue. The pictures of the finished articles, show clearly how striking they are, and with what ease they can be made up. One set of patterns provides for a simple Egg Stand, whilst the other is a novel affair on wheels with a chicken, the legs of which actually move when the novelty is pushed along the table.

Three Simple Stands

The upper patterns provide a selection of three different kinds of egg stand. Each of the patterns provide the side of the actual shelf, and in consequence, two of each must be cut. They should be in $\frac{1}{2}$ in. wood.

The shelf itself is cut from $\frac{1}{2}$ in. piece of wood, and as all eggs are not the same size, the pattern is provided with three different dotted circles. Thus, if a small egg is required, the inner circle is cut, whilst if a larger



Two Dainty Chick Egg Holders

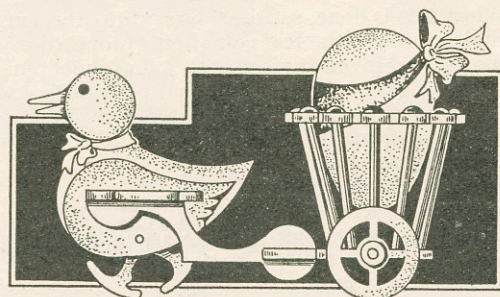
egg is to be fitted, the largest dotted line is cut. Measure the Eggs

It is therefore, necessary to have the eggs at hand, and to measure them off to see that they will fit into the hole before it is actually cut. The shelf is glued between the two sides about $1\frac{1}{2}$ ins. from the bottom edge, and if necessary, tiny blocking strips can be glued beneath to hold it in place.

Finish in Colour

The whole article should be finished off in bright colours of enamel, yellow and black being the most suitable and appropriate to the chick and duck patterns.

The pattern for the other side required, must of



The Walking Chick and Basket

course, be traced off and reversed on to the wood to provide the alternative side.

A Walking Chicken

The lower novelty is also cut out from odd pieces of fretwood and birch plywood is suitable $\frac{1}{8}$ in. thick.

As it will be observed, the novelty consists of a simple basket-like affair on wheels to which is harnessed a cute little yellow chick. The latter actually appears to walk when pulled along the ground, and if sent down a slight incline, the whole thing travels unaided in a most realistic manner.

It is thus sure to win the attention and delight of any small child, and incidentally, opens up an unique method of 'rolling' hard-boiled coloured eggs—a humorous ritual practised in some towns!

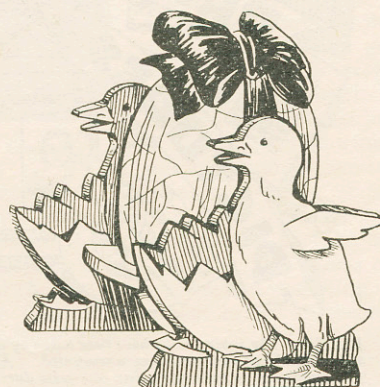
Before pasting the patterns to the wood, it will be necessary to separate the top-most pattern of the central body framing (C) and paste to a piece of $\frac{3}{16}$ in. thick plywood measuring 4 ins. long by 3 ins. in width.

The Chick Parts

Assuming everything has been cut out in the usual way, select all the chick parts (see Fig. 1). The tenons (A) of the projecting "wing" parts are glued to the mortises (A) of the right and left side covering

pieces as indicated.

Following this procedure, the covering parts are glued neatly over the thick central portion as indicated by the dotted lines on pattern.



The Little Duckling

Easter Egg Novelties—(continued)

When this is done, set the "legs" into the curved cavity (be sure the feet point in the proper direction shown) and pivot in place with a fine panel pin.

The edges of the circular head pieces (C) should be rounded with glasspaper before attaching with glue as shown by the drawing. The shaft parts (B) are glued underneath the "wings" on either side, and if essential, a few fine 3/16in. fret nails added to ensure additional strength.



Fig. 1—The parts and how they are assembled.

The Egg Basket

It should have been mentioned, by the way, that all the 1/8in. dowel holes in the basket parts are best made with a suitable twist drill before cutting them out with the fretsaw. This is in view of obvious weakness and the angles at which the holes must be made.

It will be seen at Fig. 2 these particular parts are held together with twelve pieces of 1/8in. round dowel rod cut 2ins. long. They should be glued to the bottom axle part first, following this by attaching the circular rim evenly and extra cautiously on top.

The dowel ends will need to be glasspapered flush with the surfaces of course. And as those at the top may be seen, they can be effectively hidden by separating the beads from a piece of (No. 52) half-round ball beading and gluing same over the ends as shown.

Final Construction

Proceed by rounding the axle projections slightly

to suit the wheel centres and hub washers. One each of the latter are glued over the axles; the wheels being made to revolve freely against them, and *not* glued.

When gluing the outside hub washers over the axle spindles, do not have them in too close proximity with the wheels, but just near enough to ensure easy movement. The halfchecks (B) of the shaft parts are attached to the relative checks of the basket bottom.

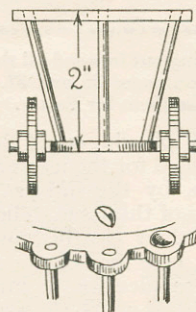


Fig. 2—An end view of the basket and a detail of the dowel and cover.

Colour

As an adequate style of finish, the body of the chick may be enamelled yellow or primrose (No. 12). In respect to the legs and beak, these could be coloured bright red (No. 9). The basket cart itself would look very attractive if coated over with light green or deep blue shades (Nos. 18 and 2 respectively).

All the above colours are obtainable from Hobbies Ltd., in small sample tins of Crusoe Enamels, each costing 2d. with postage 1 1/2d. extra on one or more. It is worth getting them if you intend to make several of these or other novelties.

The enamel should be applied with a large pencil brush, and when colouring the revolving legs, do not apply it too thickly as there is the aptitude of it impeding with the movement of same. If required, this enamel may be thinned to any consistency desired by adding a few drops of turps.



Here is a chance to make your camera pay! Each month Hobbies Weekly are presenting cash prizes for the best print submitted on the subject provided. The winning efforts will be reproduced in these pages with remarks of the judges on the entries generally.

SUBJECT for APRIL—CHUMS

You will probably have a subject already taken that you can enter for this competition. If not, there is plenty of time to get a good picture of your chum. Give him a nice plain background against which he will show up well, and, if you want him to look really natural, take him at some ordinary occupation. Focus sharply on his face—if the other parts of the picture are slightly blurred, so much the better. Human beings or animals can be counted, and don't forget to look for likely subjects during the Easter holidays!

PRIZES

In the Open Section a 1st Prize of £1 and a 2nd Prize of 10/-. In the Junior Section the 1st Prize is 12/6 and the 2nd Prize 7/6.

RULES:—The subject must have been taken by the competitor, but the finishing may be done by a professional. Prints of any size may be entered and can be mounted or unmounted. Each print must bear the competitor's full name and address, and his age if under 16 years. No competitor to take more than one prize during the season. If a stamped addressed envelope is sent with the entries every endeavour will be made to return them. Entries should be addressed "Amateur Photographic Competition"; Hobbies Weekly, Dereham, Norfolk, and must arrive not later than April 30th. The Editor reserves the right to publish any entries he wishes in Hobbies Weekly. All competitors under 16 years of age will be adjudged in the Junior Section.

DOLL'S KITCHEN DRESSER

WE are giving this week full details how to make the attractive little toy dresser reproduced in the sketch. Perhaps we should not say "little," because it is really large enough to hold all the things that will be required for dollies kitchen. The height of the article is $10\frac{1}{2}$ ins.; its width 7 ins., and the depth from front to back of the lower cupboard portion 3 ins.

So it will be seen that there is ample space in the cupboards and the drawers for all the miniature saucepans, plates, brushes, etc., while above, the larger cupboards would be just the thing for the placing of jars and containers, and the long narrow cupboard for the flour sifter and bowl.

A Pull-out Pastry Board

There is also a pull-out board complete with handles for the making of pastry.

Plywood has been adopted for the dresser throughout, so a good strong job may be made.

The sides should be the first pieces to mark out and cut, and the shape and measurements shown in Fig. 1 will be ample guide for this. See the grain of the wood runs upwards, although this does not matter so much when plywood is being used. If, however, ordinary $\frac{3}{16}$ in. wood is used, it would be very necessary to watch this.

Cut first the one side and then use this as a template for marking round to get the other side.

Next cut the main back to the dresser $10\frac{1}{2}$ ins. high by 7 ins. wide. Glue the sides to this piece flush (see Fig. 2) and add one or two fret pins. The top, $7\frac{3}{8}$ ins. by $1\frac{7}{8}$ ins., and kept flush at the back so it projects beyond the sides and the front $\frac{3}{16}$ in.

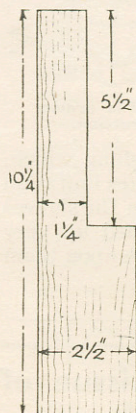


Fig. 1—The Sides.

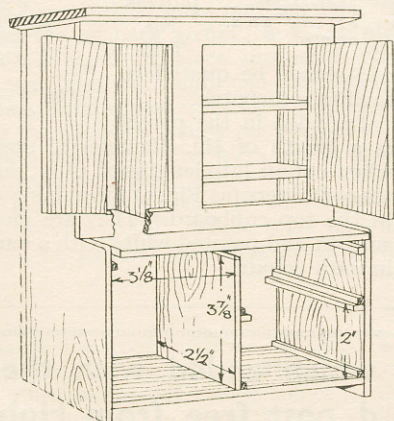
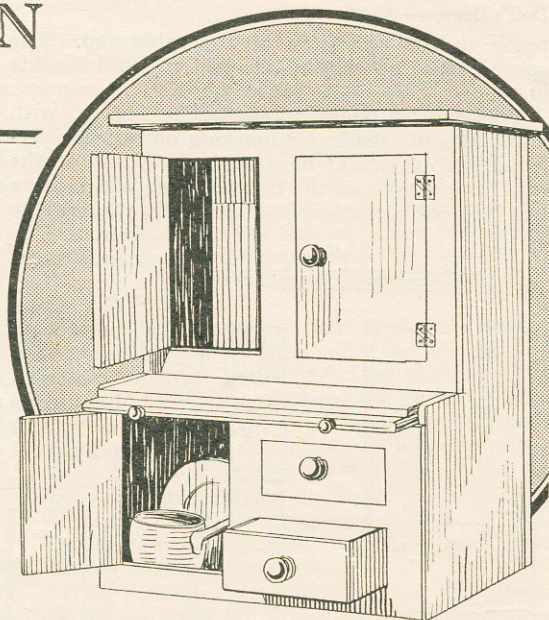


Fig. 2—A general view of construction.



The table top pushes in between the sides, and it measures $6\frac{5}{8}$ ins. by $2\frac{3}{8}$ ins. In fitting this piece do not force or strain the sides outwards or the bottom or floor of the article will not fit properly. Glue the back edge and put in a pin or two.

WOOD REQUIRED

4 pieces $\frac{3}{16}$ in. plywood 11 ins. by 7 ins.
1 piece $\frac{1}{8}$ in. plywood, 5 ins. by 5 ins.
3 pairs $\frac{3}{8}$ in. brass hinges.
5 turned knobs (No. 49).
8 in. $\frac{3}{8}$ in. diam. dowelling.

PARCEL SUPPLIED

All the wood, knobs and material is supplied in Parcel T.M. 287 for 1/9 post free.

Then mark and cut the upright partition separating the two top cupboards. This partition measures $5\frac{1}{2}$ ins. by $1\frac{1}{4}$ ins., and it is glued and pinned to the back and to the table top, and also to the main top. The two shelves to the cupboard measure

$3\frac{3}{8}$ in by $1\frac{1}{4}$ ins. and are held by glue and pins to the back and side. These are put in, and the main floor then cut, eased in, glued and pinned. The floor is $6\frac{5}{8}$ ins. by $2\frac{1}{2}$ ins. and it must be observed while putting this piece in that it must be kept up $\frac{1}{8}$ in. from the lower edge of the sides as Fig. 3 shows.

The Front and Doors

The main front to the top portion is shown in detail in Fig. 4. Square up a piece of the plywood $5\frac{1}{2}$ ins. high by 7 ins. wide and run a $\frac{1}{8}$ in. wide margin round it in pencil. Then set out the 2 in. door and the $3\frac{1}{4}$ in. door with the $\frac{3}{8}$ in. rail between them.

After cutting out the doors fix them again in their respective openings with small hinges pinned to the wood on the outside as the perspective view of the cupboard shows. Glue a little piece of wood along inside the smaller door, on the frame as it were, to keep the door from straining the hinges. The shelves in the larger cupboard will suffice to hold the door flush.

In the lower portion of the dresser the central partition measuring $3\frac{3}{8}$ ins. by $2\frac{1}{2}$ ins. is cut and fixed. Glue and pins on the back edge and to the edge resting on the floor will secure this. From Fig. 2 it is seen that this partition does not quite

Doll's Dresser—(continued)

reach to the underside of the table top. The space allows for the pull-out pastry board to slide in.

This pastry board is shown in Fig. 5, with measurements ready for marking out on the plywood. Note should here again be made of the small projections at the front corners which leave just the correct amount of projection along the front. The enlarged detail (Fig. 6) shows one corner of the board and how it fits when pushed

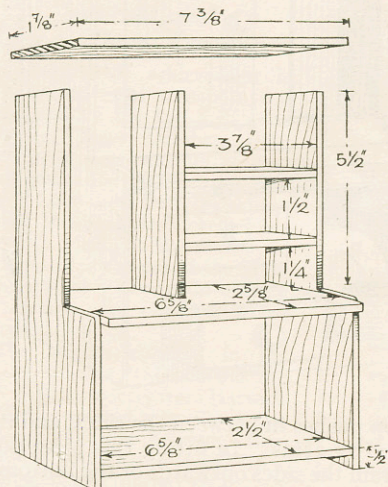


Fig. 3—Detail of shelves and crosspieces.

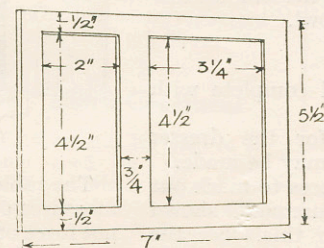


Fig. 4—The upper front piece.

into place. Two square $3/16$ in. fillets glued to the sides inside will act as runners for the board. Inside the right-hand cupboard there will have to be fitted and glued a pair of guides and runners for the upper drawer to rest upon. Each guide and runner will be made of one $1/2$ in. by $3/16$ in. piece with a piece glued to the top of it measuring $3/16$ in. by $1/4$ in.

Runners and Hinges

In the case of the lower drawer, the floor itself acts as the runner for it and the two small fillets shown in the angles act as guides. Space out the pieces carefully before gluing them inside the cupboard.

The main lower front is drawn out and cut according to Fig. 7. Finally, clean up the edges of the piece and fix it to the front of the cupboard with glue and pins.

Put small hinges on the door of this lower cupboard in a similar manner to those above and glue on a small fillet inside as door stop.

The two drawers are simple to make up, and

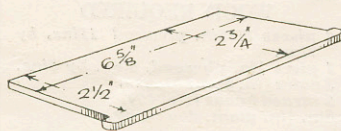


Fig. 5—The pastry board.

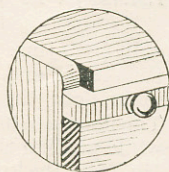


Fig. 6—A corner of the pastry board in place.

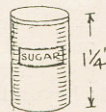


Fig. 9—Imitation jam pot cut from dowselling and painted.

287 should be quoted to facilitate dispatch.

Included in the parcel is a length of $3/4$ in. diameter of dowselling which, when cut off into lengths of $1 1/4$ in., makes imitation tin containers (as Fig. 9) for putting on the shelves in the top cupboard. They are cleaned up very smooth and painted white with a name upon them in dark colour.

Fig. 8 shows their construction. All parts for the drawers are of $1/4$ in. plywood except, of course, the main front pieces which are the oblong pieces cut from the main front.

The Drawers

The detail (Fig. 8) shows the construction of one of the drawers, and little need further be said, beyond giving advice that when they are cut and glued together they should be allowed to stand for a time allowing the glue to harden before the glasspapering is done.

Five turned knobs (No. 49) in Hobbies list are required for fitting to the three doors and the drawers.

The whole dresser, when finished, should be glasspapered all over and given a coat of white enamel. That sold by Hobbies is splendid for the purpose and very economical in use. It is sold in tins at 2d., which makes it very useful for the painting of toys and such like small articles where a larger quantity would lead to waste.

A cheap little parcel of plywood of the thicknesses required for the kitchenette has been put up by Hobbies, and one can be bought for 1/9.

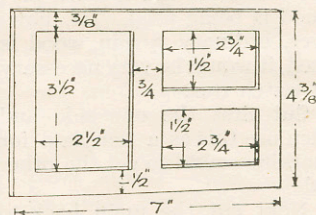


Fig. 7—The lower front piece.

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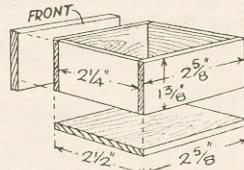
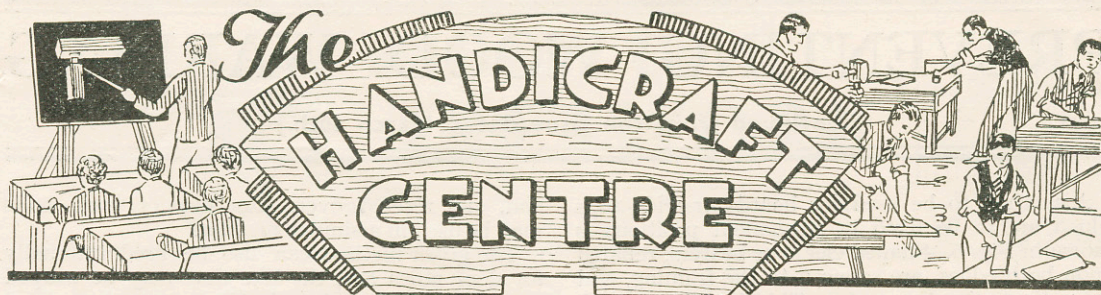


Fig. 8—The drawer construction.

A complete Index of Volume 79 which ended with the issue of March 30th is now ready, price 4 1/2d. post free, from Hobbies Ltd.



Importance of Handicraft

THE value of handicraft, from the educational point of view, is apparently being appreciated more than ever by the various education authorities up and down the country.

In London, a proposition has been put forward to provide a three-year course in this subject in the elementary schools where, at the present time, a two-year course is the general rule.

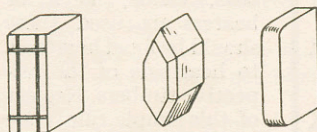
Museums

ANOTHER feature is the appointment of an official, whose duty it will be to make the necessary arrangements for the conducting of parties of children from the schools, round the museums.

A start is being made at the Horniman Museum, famous for its collection of primitive tools and, I understand, it is also probable that later on, the Geffrye Museum will also be included in this scheme. The latter is the well-known craftwork museum, in Shoreditch that I referred to in these columns some time ago.

Wooden Fittings

AT the present time there is a tendency to replace the usual metal fittings on furniture, and small domestic articles



Fittings adaptable as drawer pulls or small door knobs.

with wooden ones. This greatly increases the scope of the work for those who design their own jobs, and enables them frequently to turn out a better looking article at a lower cost.

In The Centre

THE other day I was in a handicraft centre where the boys

were encouraged to design their own wooden fittings, and the work turned out reached a very high standard indeed.

Some idea of the variety can be gathered from the fact that the examples included tray handles, drawer pulls, knobs on the lids of boxes and cabinet doors, and handles on wooden candlesticks. In some cases these fittings were made of a contrasting wood and many very pleasing effects were obtained.

I have illustrated one or two simple examples on this page just to give some idea of what can be done, and if, using these as a basis, you develop your own ideas along similar lines I am sure you will find that it has been time well spent.

Chemical Uses of Wood

I WONDER how many readers I have ever thought of making a suit of clothes, a silk shirt or a sponge out of wood. It sounds rather ridiculous, doesn't it? But it is being done every day by the scientist woodworker.

These craftsmen work with the wood of the various pines and spruces, and by different chemical processes make artificial silk, synthetic sponges, material for suits and overcoats, cellophane (the transparent material so popular for packing at the present time), imitation amber and ivory, and, of course, paper.

The artificial silk is, perhaps, the most important section, and some idea of the size of this "sideline" can be gathered from the fact that the latest available figures give the annual output as 626,000,000 lbs. weight.

The threads are finer than the best silk-worm threads, and it is impossible to tell the difference between present-day artificial silk and real silk unless a chemical analysis is made.

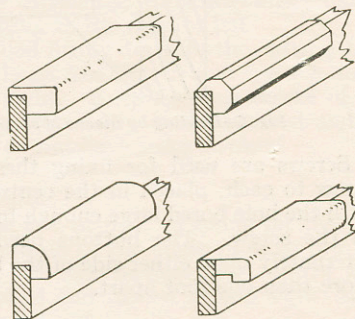
Cork Rubbers

IT is surprising how often one comes across centres where a cork rubber is not available when

a job is being cleaned up. The argument is frequently put forward that "a piece of wood will do as well," but even so, the wood usually has to be planed flat and also cut to size, which really gives quite a lot of unnecessary work and incidentally often causes the glasspaper to be cut to waste.

How to Make One

A cork rubber is useful and very efficient, and it is handy to



Four examples of simple tray handles to make.

have several of these available for immediate use in the centre.

It is advisable to make two sizes, one 5ins. by 3ins. by 1/2in. for the bigger jobs, and the other 4ins. by 1 1/2ins. for smaller work. A sheet of glasspaper measures 12ins. by 10ins., and if the rubbers are made to the sizes suggested, the sheets can be cut up into six or twelve equal pieces without any waste. This allows 1/2in. of glasspaper on each side of the rubber which is plenty for holding it in place.

A thick cork lino is, of course, the best to use for facing the rubber, but any, except the very thin printed lino can be used. If the block is prepared first and then a slightly larger piece of lino glued on to it, the projecting parts can be trimmed off afterwards, thus making a very simple job that even a junior craftsman can turn out well.

The Craftsman

PREVENTING WOOD WARPING

(Continued from the issue dated March 16th.)

A method to be used for boards or wide tops which are to be fixed in permanent positions is shown in Fig. 6. Shaped cleats or bearers, rebated upon both edges, are screwed to the framing, and upon these the top rests. This is secured with hardwood buttons cut from stuff approx. 2 ins. by 1 in., and about 3 ins. long. The ends are cut with the saw to suit the rebates in the bearers.

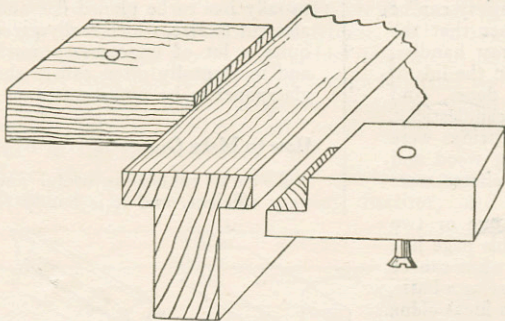


Fig. 6—Holding by means of shaped cleats.

Screws are used for fixing these buttons, one screw to each, placed in the centre of the button with the hole bored large enough to allow free play to the screw. The buttons need to be spaded alternately upon either side of the bearers, and not more than one foot apart.

Iron Edging

In Fig. 7 composite methods are shown where iron is used in wood to prevent warping. At A an iron tongue in the form of a loose tongue is employed upon the end grain of timber. The iron is inserted in saw-cuts made previously. Many of the leading railway companies employ this method when laying down platforms.

Stiffeners

The illustration at B, Fig. 7, shows a useful way of dealing with external work, such as seats or forms, that may show a tendency to warp. Holes are bored central in the edges and across the width of the stuff to take a quarter iron rod. These rods when driven tight have a washer placed at either

end, and riveted over. For heavier work, bolts may be used in a similar manner.

The given method can also be used internally for door stiles and the like that may be warped and twisted in their length. First force the twisted members into their correct alignment, then bore in the edges $\frac{3}{8}$ in., $\frac{1}{2}$ in. or $\frac{3}{4}$ in. holes, according to the thickness of the stuff. A general arrangement is to make the diameter of the hole bored, equal one third the thickness of the stuff.

Hardwood Dowels

The holes need to be bored not less than 3 ins. deep. Preferably they should go right through. Hardwood dowels are used, and these are usually dipped in glue before they are driven in.

The position of the dowels is determined by the most affected part of the timber twisted. To obtain the best results the holes should be made on

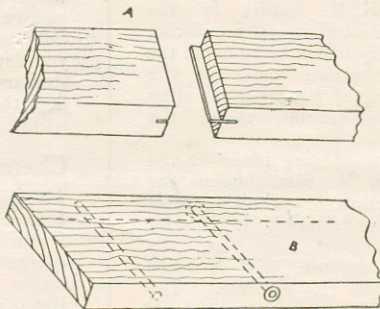


Fig. 7—Two further methods of prevention described.

either side and an inch or two away from it. Other holes are needed and these are spaced up to 9 ins. apart, increasing the spacing as the twist disappears.

In all the examples described where battens, cleats, keys or bearers are used, these should be fixed heartside to heartside of the respective timbers. Neglect of this simple rule is one of the main causes of excessive warping.

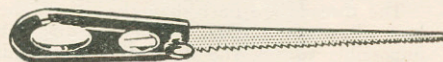
To reduce the possibility of warping under other conditions, care should be taken to see that timber is always laid or fixed heartside down. This applies especially to flooring, hatches and covers.

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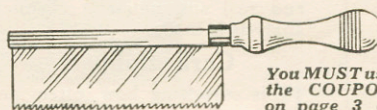
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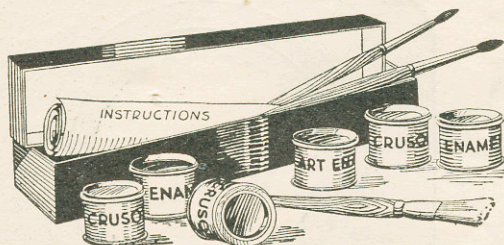


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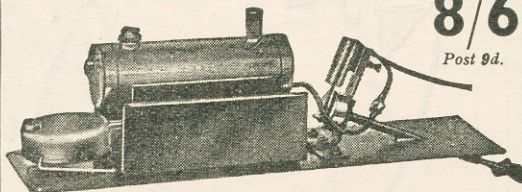
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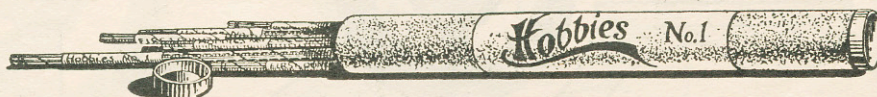


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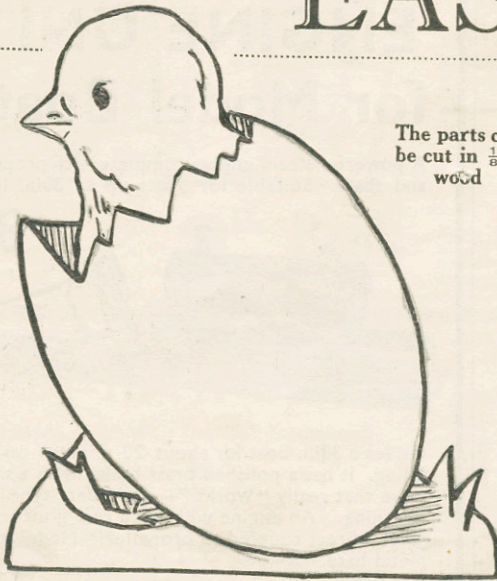
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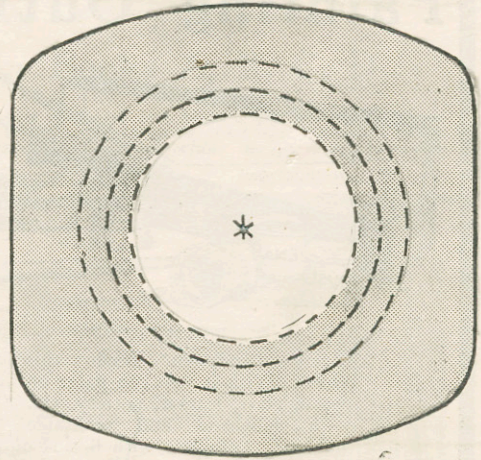
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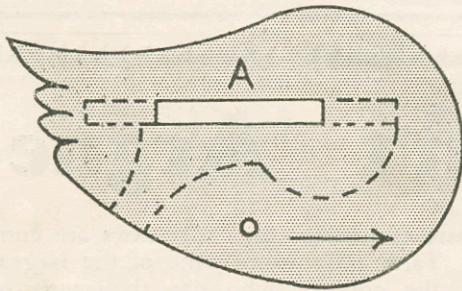
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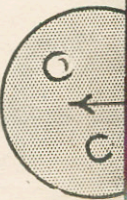
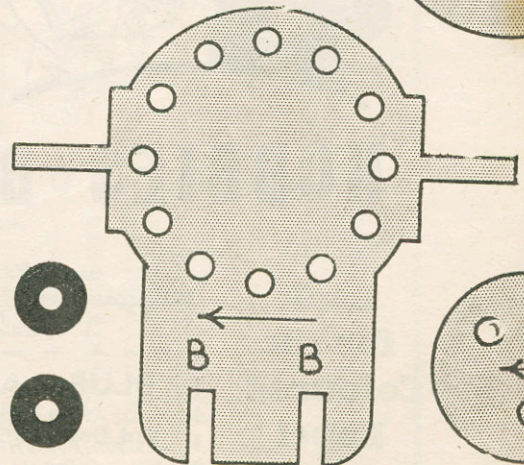
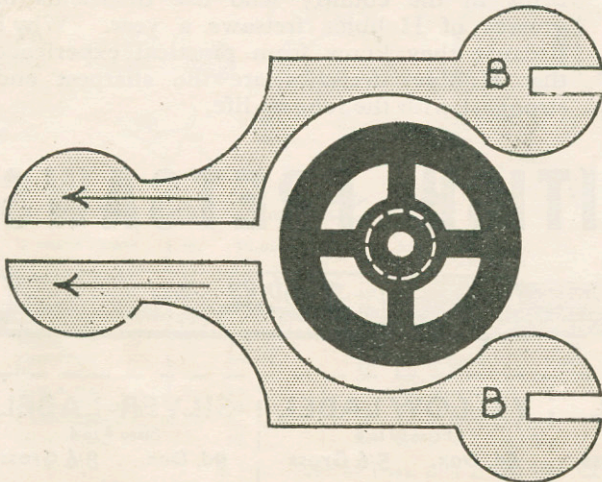
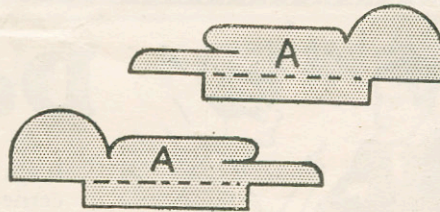
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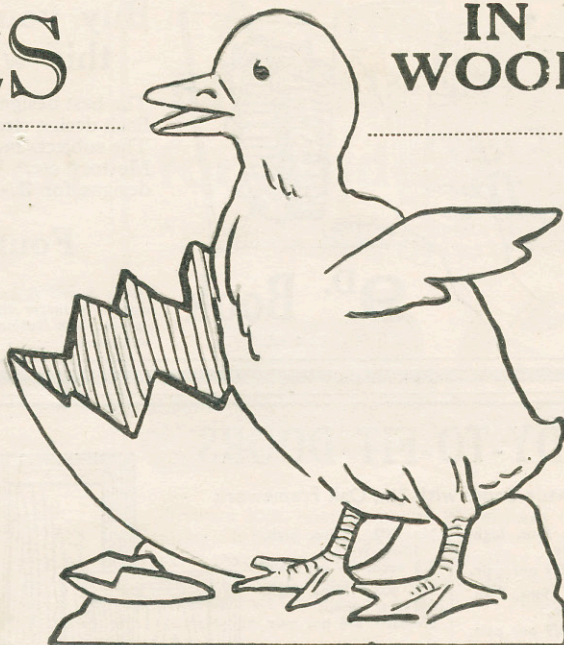
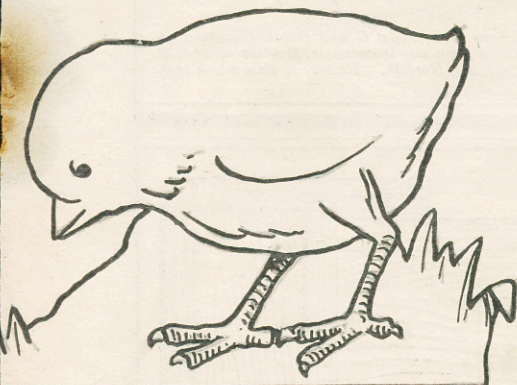
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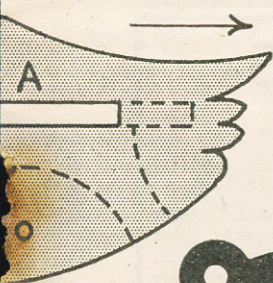
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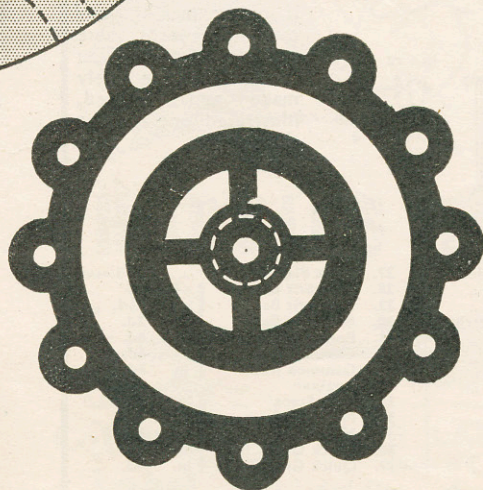
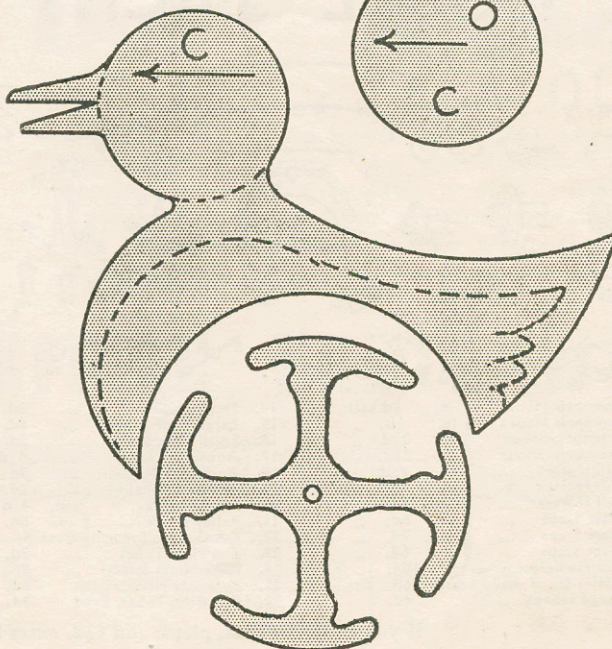


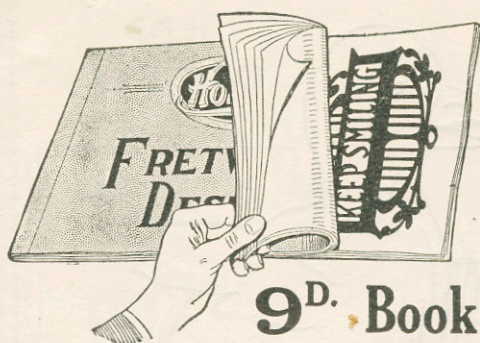
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The arrow indicates the direction of the grain



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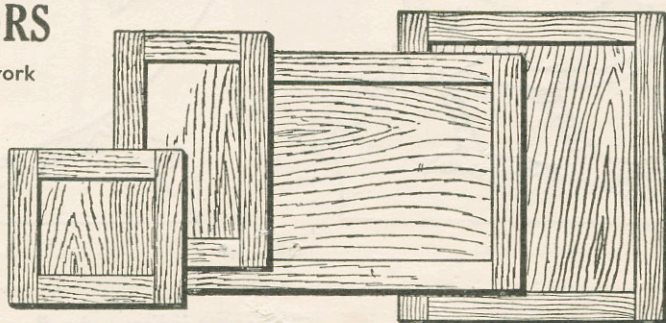
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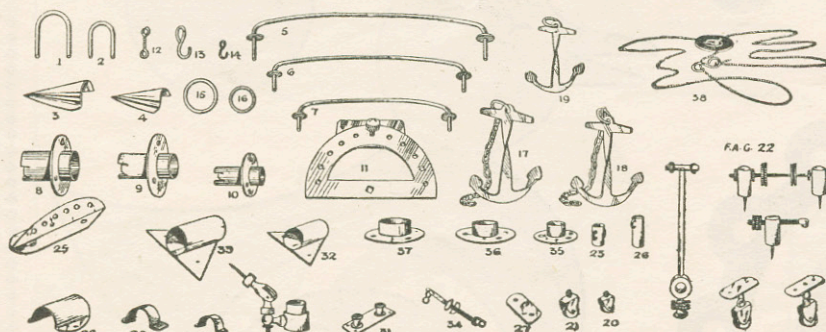
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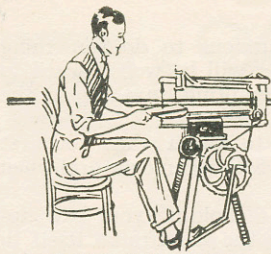
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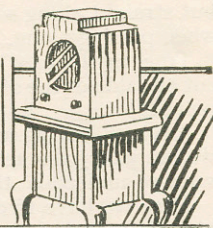
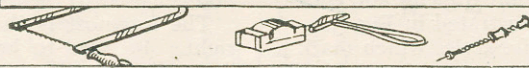
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THE ART OF FRETWORK



HAVING, in previous chapters of this series, discussed the principal questions of tools, wood and designs, we can now get down to their use in practice.

The beginner will be well advised to attempt small things at first and to have patience. He cannot expect to be an expert immediately and must learn to overcome the elementary troubles gradually.

For instance, he will break several sawblades, and may imagine it an expensive and tiresome business replacing them. But when he gets used to handling the frame and the wood, he will find

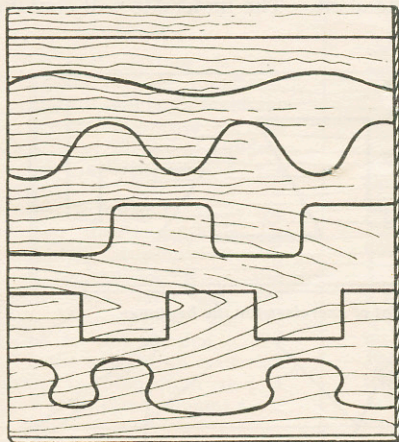


Fig. 1—Draw on the wood some simple lines to cut first.

Another thing, the sawblade is usually put in the frame too loosely. It must be quite taut to cut well and worked up and down with sufficient pressure to cut gently and evenly along the required line.

Do not be in a hurry at first. You will, strange as it may sound, get along quicker if you work slowly.

As a parallel, remember when you first began to write your letters; what a trouble it was to form each one correctly, pointing them up neatly and complete a full word. Later you could do them easily, quickly and yet have the result neat and legible.

Some Simple Lines

So it is with the fretsaw. Begin by knowing how to undertake each cut, each turn, and each line. Then as you become more proficient, you can increase your speed and find yourself doing appar-

ently difficult things quite easily.

A good plan is to set yourself some exercises in odd pieces of wood. Get a board and mark on it lines similar to those shown at Fig. 1.

There you have an elementary lesson which progresses from the straight line and gently curves to the right angle corners and sharp turns. The lines can be drawn in pencil and you should continue practising these until your saw travels the whole way along the line without deviating to the right or left.

Hold the wood firmly down to the cutting table with the left hand (see Fig. 2) and use the hand-frame in the right. Keep an even stroke of the saw up and down steadily. Not too fast and not too slow, and do not have jerky strokes.

Hold it Down

The wood is apt, at first, to spring off the table and one feels afraid of the blade running into the fingers. That will soon be overcome and the wood can be controlled and turned at will by a movement of the left hand.

Keep the saw well in the V opening of the table and hold the work down so it does not slide about. If it does, the teeth will naturally run on the metal and so spoil their edge.

Cutting a straight line is not the easiest job, but it is an essential one and should be mastered right away. Then one can pass on to the curve and turns which call for thorough control of wood and frame.

Of course, the owner of a machine is much more fortunate, because he has both hands free to hold the

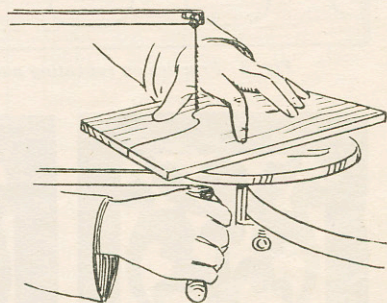


Fig. 2—Hold the work down firmly.

wood, the saw being fixed in the rigid arms and the movement controlled by the feet.

The worker should learn, too, to cut actually on the line of the pattern. Not inside or outside,

The Art of Fretwork—(continued)

but straight along so there is no mark to be seen when passing along.

True, in the case of some joints, it is as well to cut one side or the other, but we shall deal with this point later.

Anyhow, having mastered the exercises of Fig. 1, we can pass to something more difficult and endeavour to undertake those illustrated in Fig. 3.

Here we have two definite styles which mark a big advance in our cutting. On one board are marked a more 'wavy' set of curves and then of curves which form acute angles. On the other board the same principal is dealt with but having straight lines and acute angles.

Simple Exercises

Finally at Fig. 4, we have an exercise in repeating a single design, the cutting of which, will prove our mastery of the saw. Any other design can be drawn for this, but it will show better whether we can control our blade properly, because when complete, any little 'run off' will show quite plainly in the finished work.

Here then, are some simple exercises worth undertaking before we go a step further, and

although we may be anxious to do something really useful, the beginner will be well advised to do them just before attempting anything in the form of an actual design.

Now for a few points to watch when you first begin cutting, and which will become natural when you get used to them.

The foremost is that of holding your saw upright. Be sure to keep the handframe itself in line with the arm so the saw blade is vertical. This is most important and absolutely essential for accurate cutting.

Vertical Cutting

Let us imagine for a minute we have a thick piece of wood to cut. If you let the handframe sag at the back, then obviously, the saw will cut deeper in the lower portion of the wood than it will at the top. This may not be noticeable in thin wood, but the trouble is still there, and should be avoided.

But the greatest trouble will arise as the saw is held at an angle sideways. The blade *must* be vertical or bad work will result.

Imagine a thick piece of wood again with the saw cutting on the slant. The underside will contain



Fig. 3—Some curves, straight lines and angles to cut as the second lot of exercises for the beginner.

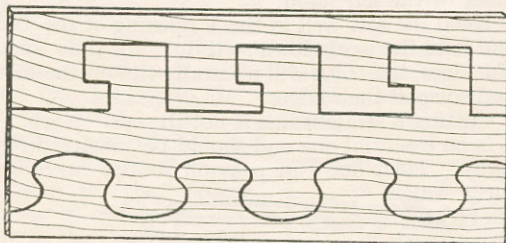


Fig. 4—Practice on repeating patterns.



Fig. 5—The slope of the saw in the first picture is wrong; the upright blade in the second is how it should be done.

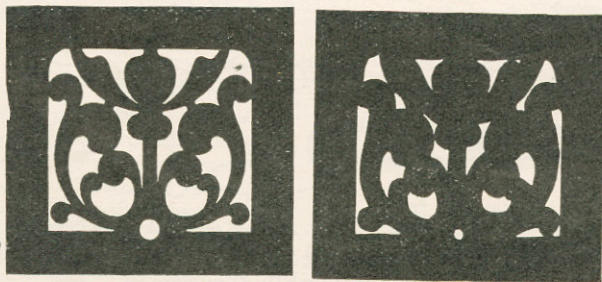


Fig. 6—The top and underside pattern when cutting was not upright.

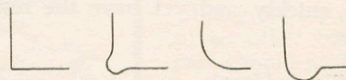


Fig. 7—The first is a right angle properly cut. The others show bad cornering until one has practised.

Art of Fretwork—(continued)

a very different pattern from the top. The exaggerated section at Fig. 5 illustrates it quite clearly where the cutting is wrong and where the saw is being held upright.

A glance at Fig. 6. shows the result of such cutting. The pattern has been completed with the saw on the line at the top of the wood. But it has been held on the slope most of the time, and in consequence, when the wood is turned over, as in the second picture, we have a very different design.

The curves here have become thickened up, the linking pieces ugly and unnecessarily large.

The question now arises as to the control of the saw to a stop and here again the vertical cutting is essential. If you approach a corner from two directions, the saw line may join quite correctly on the top of the wood, but on the underside there may be a distinct gap if the saw is not cutting upright.

Control the Blade

Learn too, to take a saw up to a point and then stop. See you do not go beyond the end of the line, or stop short of it. This can only be done by practice, but it is as essential as the other exercises mentioned earlier.

And a final point for this chapter is on the question of turning. The sawblade, remember, is slightly wider from back to front than it is wide. In consequence, it cannot turn in its own width.

If, therefore, you cut along a line, stop, and then turn your wood, you will bring the tiny blade and in all probability break it.

The only way the saw *can* be turned is when it is moving up and down. The beginner is always

apt to turn his saw or his wood too quickly. He must keep his saw moving steadily up and down without actually moving forward.

Take a right angle corner as shown at Fig. 7. The natural tendency is to sweep round as quickly as he can with the saw still moving up and down. The result may be any of the errors shown where a curved line is produced instead of a true angle. None is right, and the beginner must practice until he can turn the corner properly.

The Movement

When he gets to the actual turning point he must hold the wood from going any further. The handrime must continue to be worked up and down, but the saw must not be cutting forward. Gradually the wood is turned in the required direction, so the sawblade is actually making room for itself to turn in order to face the new line to be cut. It is turning in a very tiny hole, and when the teeth are quite round, and not before the frame can be gradually pressed forward along the second line of the angle.

This perhaps, is one of the most difficult tasks for the beginner, but it is really not so troublesome as it sounds, providing one takes the corners and angles carefully in the manner described.

It must be the aim of the worker to turn his saw at any angle without actually cutting forward at all.

Naturally the coarser the saw the wider it is and the greater the "hole" required at the corner to allow it to turn. Fine sawblades should always be used when angles have to be cut.

(To be Continued)

Model Locomotive Shed—(continued from page 28)

Paint sides and ends red enamel, some may like to add brick paper. In either case, it is advisable to finish off the sides so far with paint or paper, before adding the additional pieces. These further pieces form the imitation buttresses at the sides of the shed, and along the base between.

There are four upright piers on each side. The two end ones are set back $\frac{3}{16}$ in., and the pieces should not be glued in place until the plinth overlays have been cut, and can be tested in position. The upright piers come an equal distance each side of the windows, whilst the overlay at the bottom comes between. The piers are in $\frac{3}{16}$ in. wood and the bottom piece $\frac{1}{2}$ in.

An additional small overlay is added to each window to provide a sill. These piers and base pieces should be painted grey representing stone or cement.

End Overlays

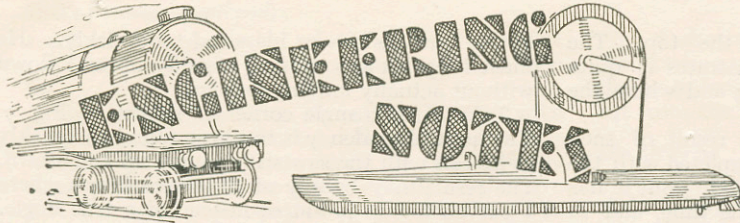
The ends of the roof have to be fitted with gable boards cut to the shape of the patterns given, and glued so the outer edge comes straight down and the other edge in line with the top of the door.

Above the door itself, as well as beneath the roof at the other end, two triangular gable overlays $\frac{1}{2}$ in. thick are fixed, and their position is indicated by the dotted lines on the pattern. They actually come $\frac{1}{2}$ in. beneath the roof itself so they can be seen when looking at the end of the model.

The whole of the work is now complete, but how realistic it actually is depends upon the use of the paint brush. The roof can either be provided with slate paper varnished over, or painted a dull slate colour. The main body of the model, the walls, ventilators, base, etc. is best painted a bright red, whilst the window overlays should be in white. The door has already been dealt with. The interior can be white with grey or stone colour floor.

Bright Colours

Do not use an ordinary dull flat paint on the model, but get some enamel which will be both colourful and bright, glossy. The 2d. tins of Crusoe Enamel supplied by Hobbies Ltd. are just the thing, and before undertaking the work it will be very helpful if the maker goes to a locomotive yard and studies an engine shed to see how he can best follow out the actual building in the model he has made.



International Door-to-Door Transport

A NOTABLE achievement in international transport was completed by the L.N.E.R. quite recently. Since October, 1931, twenty-six consignments of electrical machinery have been conveyed 1,300 miles from the sidings of the Metropolitan-Vickers Electrical Co., Ltd., at Manchester, to Budapest for the use of the Hungarian State Railways in making locomotives and electrical power stations.

The wagons engaged in the special mission travelled via the L.N.E.R. train ferry from Harwich to Zeebrugge and thence over the railway through Belgium, Germany and Austria to Budapest.

In addition to the great convenience of being able to load the electrical motors and equipment at the firm's own works, there was also a saving of £2 per ton in packing, for the motors do not require packing-cases when loaded in this direct way.

New Railcar for Ireland

A NEW oil-engined bogie-wheeled railcar is to be placed in service on the Enniskillen-Bundoran section of the Great Northern Railway of Ireland this week. The new car develops 96 horse power at 1,600 revolutions per minute, and is more powerful than the two cars at present in service on the G.N.R.

It has a four-speed gearbox, and foot-operated sanding for the leading wheels. Carrying full load of fifty passengers, it can attain a speed of 45 miles per hour.

The Second L.N.E. "Mikado"

THE second of the new L.N.E. "Mikado" or 2-8-2 type express engines of the streamlined *Cock o' the North* series has emerged from Doncaster Works and has been exhibited at the L.N.E.R.

Railway Exhibition at York. The new engine, No. 2002, called *Earl Marischal* is fitted with reciprocating valve-gear of the Walschaert type, in order that the merits of this gear may be compared with the rotary cam type gear fitted to *Cock o' the North*.

The *Earl Marischal* is unusual among British engines in that it carries a mileometer and speedometer. The mileometer registered 948 miles at the York Show.

In the "Black Continent"

THERE are still big gaps to be made good in the great ribbon of iron which will one day link the Cape of Good Hope with Cairo and the Mediterranean



How the Africans build railways at the rate of a mile a day.

coast. Not only are there hundreds of miles of jungle remaining unconquered in the heart of the African continent, but the traveler has still to voyage 200 miles by Nile steamer where a large break in the railway occurs in Egypt.

When the wonderful transcontinental line is finished, of course, it will be possible to travel from Capetown to Cairo without change of train—so many people think! But they overlook the fact that the gauge of the railways in Egypt and the Sudan is 4ft. 8½ins., while the lines in the south of the continent are of the 3ft. 6in. type. Got to get over

RAILWAYS REAL AND MODEL

that somehow! A change of train where the two gauges meet will be the only remedy.

When Cecil Rhodes tackled the job of pushing the transcontinental north from the Cape, he found it no easy job to control the natives. They kept giving up the work and running away, at times to die from starvation or to be torn to pieces by wild beasts. But those who stuck it out reaped great benefits when the railway through their territory was completed.

It was no easy work for the white engineers, either, who directed the railway construction. The swampy, fever-stricken country, at times encountered, went hard against their health.

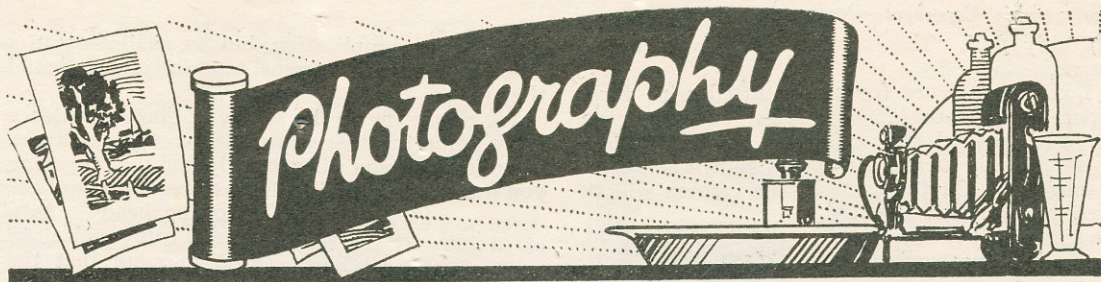
Despite the difficulties, however, the rate of progress was often no less than a mile a day. No, that is not a record for fast railway construction! Parts of the Canadian Northern Railway, now absorbed into the Canadian National, were constructed at the rate of four miles a day!

The interesting picture shows African natives clearing virgin forests, and preparing the railway bed to receive the rails on the Lobito Bay branch of the Cape to Cairo Railway. This important branch, 1,000 miles long, was opened in 1929. The main line from Capetown to Cairo will have a length of 6,000 miles.

Driver Sparshatt Again!

NOT satisfied with having driven No. 4472 "Flying Scotsman" at 100 m.p.h. at the close of last year, Driver William Sparshatt has just beaten his own world's record for steam travel by reaching 108 m.p.h. with another L.N.E.R. test train. The engine was Super-Pacific No. 2750 "Papyrus," and the maximum speed was attained in the blackness of the early night—but more of that in our next notes!

High Pressure



FIRMS who undertake developing and printing have in some recent statistics stated, that over 50% of the failures in the films they develop are due to incorrect exposure. Of these by far the greater number are caused by under—not over-exposure, which is comparatively rare.

There is no doubt that the problem of exposure is a very real one, and it is hoped that by dealing in this article with its underlying principles, to help those who are always in doubt as to "what to give." The correct exposure should be worked out every time before we "press the button."

One happy-go-lucky photographer, the writer knows, sets his shutter to $1/25$ th of a second, and never alters it. He says it "saves trouble." To some extent of course, it does, but, judging by his results, it certainly does not save him money!

In judging the exposure necessary for a given subject we have to consider four factors. (1) The strength of the light; (2) the size of the stop, or lens aperture; (3) the speed of the plate or film; (4) the type of subject. If we confine ourselves to one make of plate or film, the third factor will remain constant and so can be ignored, and many photographers of repute follow this course.

cloud present. The light has most power in June and least in December. Other things being equal, a subject needs four times the exposure in December than would be required in June.

The intervening months need exposures ranging between these extremes. This fact is often not realised and people wonder why their winter photographs (taken when the sun was shining a n d given the

A GUIDE TO CORRECT EXPOSURE



A study in snow—Class 1.



A scene, as described, for Class 2.

same exposure as similar subjects in summer) turn out badly.

A tripod is practically a necessity in winter, but when used and the necessary long exposure given, results equal to summer ones will be obtained.

The sun has most power at midday, but during the summer months from 10-2

it is fairly constant. In winter, however, the light is distinctly poorer before 11 a.m. and after 2 p.m. On this account it is a safe rule not to take snapshots in winter except between the hours of 11 and 1—and then only when the sun is shining. For though the light may appear bright to the eye it has little actinic power.

The power of the sun varies according to the amount of cloud about and we can classify the stages as follows. (a) Sun shining unobscured; (b) Light clouds across the face of the sun, (c) Dull;



A Class 3 Picture.

Let us consider the other factors in order.

The strength of the light varies according to (a) the season of the year; (b) the time of day (c) the amount of

Photographic Exposures—(continued)

(d) Very dull. The exposure should be double for each stage.

Box cameras are frequently fitted with three separate stops or lens openings, but the most common method of varying the size of the lens aperture is by means of what is known as an iris diaphragm. On the front of the camera will be seen a scale with the figures, F4.5—5.6, 8, 11, 16, 22, and 44 engraved on it, or perhaps with only some of these figures.

If you set the indicator to "Time," open the lens, and then open the back of the camera (when it is unloaded, of course) and look through it, while holding the lens pointing towards the light, you will see the full size of the lens opening.

Still holding the camera so, slowly push the lever indicating the stops up the scale. You will see the opening decrease in size until it is no bigger than a pin's head. Now obviously the smaller the lens opening, the less light can enter and, consequently, the longer must be the exposure to give a fully exposed negative. Now the smaller the figure on the scale, the larger the lens opening (as you have probably by now discovered) i.e., the faster the lens. Thus a lens of F 4.5 is faster than F8, while F64 is the smallest size usually seen.

You might think that when using F16 it would be necessary to give double the exposure needed for F8 but as a matter of fact the speed of the lens varies according to the squares of the stops. The square of 8 is 64, and the square of 16 is 256—that is four times 64. So, when using F16 you must quadruple the exposure needed at F8. It is a rough, but fairly safe, rule to double the exposure for every step up the scale, and if you follow this you will not go far wrong.

Some people ignore the stops thinking them an

unnecessary complication, but we shall show in a later article how extremely useful and essential they are.

We now come to the subject. For convenience let us group together some of the commonest types of subject and you will generally find that anything you want to take will fall under one or other of the following heads. As a general rule it is well to bear in mind that the nearer you are to a subject the longer must be the relative exposure.

(1) Open seascapes, distant hill, clouds, snow



A charming view—Class 4.

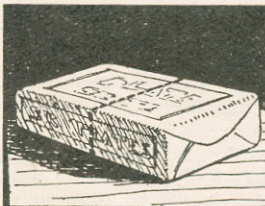
scenes; (2) Open landscapes, river or beach scenes with no near dark objects; (3) Subjects with light foregrounds, well lighted streets, harbours, or light coloured buildings, with no heavy object near. (4) Landscapes with average foregrounds, average street scenes, beach scenes with foreground figures; (5) Landscapes with heavy foregrounds, near buildings, portrait groups; (6) Subjects with very dark foregrounds, half length portraits; (7) Dark scenes under trees, head-and-shoulder portraits.

For each of these groups it is advisable to double the exposure of the preceding group, and you will



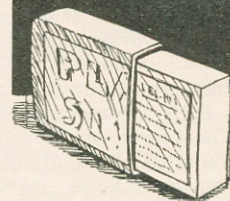
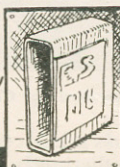
A Portrait—Class 5.

OUR WEEKLY PICTURE STRIP OF PHOTOGRAPHIC HINTS

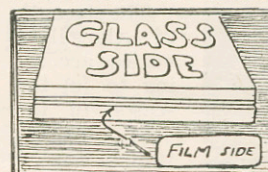


WHEN OPENING A BOX OF PLATES DO NOT TEAR OFF THE WRAPPER BUT **CUT IT ROUND** THE DOTTED LINE (AS PER ABOVE SKETCH) WITH SHARP KNIFE—IT WILL NOW COME AWAY IN °° HALVES CAN BE REPLACED

AFTER THE REQUIRED NUMBER HAVE BEEN TAKEN OUT, THUS MAKING



THE BOX ONCE MORE LIGHT TIGHT AND AS SAFE FOR HANDLING AS WHEN IT FIRST LEFT THE MAKER. TALKING ABOUT PLATES IT IS USEFUL TO KNOW THAT THESE ARE PACKED BY THE MAKERS FACE TO FACE (FILM TO FILM). THE KNOWLEDGE HELPS WHEN LOADING SLIDES



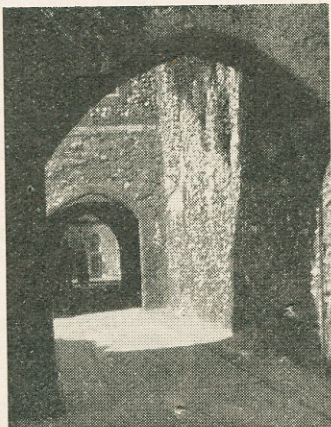
IN THE TOTAL DARK. ° ANOTHER WAY TO FIND THE EMULSION SIDE OF A PLATE IN THE DARK IS TO BITE GENTLY AN EXTREME CORNER. THE FILM ° SIDE WILL ADHER SLIGHTLY TO THE °° TOOTH. H.A.R.

Photographic Exposures—(continued)

notice that one of the favourite subjects of amateurs, i.e., portraits, are right at the end of the list. This will perhaps explain why so many portraits have black faces, due to under-exposure.

Possibly all this sounds very complicated and a lot of fog, but in reality it is not so. There are exposure meters on the market which can be bought cheaply. With these you can test the actual strength of the light. There are also calculators, one of the simplest of which is "Welcome's Photographic Exposure Calculator," and which will simplify your calculations for you. A copy of which will be sent free on request to any reader.

If, however, you bear in mind the foregoing, you will find that having once obtained some correctly exposed negatives you have a standard. From this you can easily arrive at the exposure necessary for any subject taken under any differing condi-



A Picture in Class 6.



A Study in Class 7

tions. A small notebook with details jotted down of the date, time of day, type of lighting, etc., will be found of the utmost value in reducing the number of failures from wrong exposure.

Over-exposure is a rare trouble—under-exposure is what one has to guard against. A very old, but useful rule is "Expose for the shadows, the highlights will look after themselves." When in doubt give double.

Over-exposure generally occurs when a person who is accustomed to inland photography uses his camera at the seaside. Here the water reflects so much light that exposures have to be cut down

enormously—or a smaller stop used. Another cause is when a new camera with a larger lens aperture than that to which one is used is employed. Here the "fast" lens may cause over-exposure.

AN ORNAMENTAL WINDOW WEDGE TO MAKE

HERE is a dainty little window wedge cut from an odd piece of wood and painted up in a quaint and artistic way. You will find plenty of odd pieces of $\frac{3}{16}$ in. wood round about your work corner which can be used thus. Take pieces which are quite free from cracks, since there

is nothing more trying than to have almost finished an article of this kind only to find at the last moment the wood is cracked.

The layout of the design is indicated in Fig. 1, and is done by dividing the surface of the wood into $\frac{1}{2}$ in. squares, and then drawing the shape from the detail. The end is tapered

off with a chisel to form the wedge as shown, and the outline of the figure is cut with a fretsaw.

When the cutting is completed, the edges and surface should be smoothed up and the wedge end given a coat of stain.

A striking effect is obtained if the bird is shaped in with the colours as indicated in Fig. 1. This need only be done on the front face of the wedge, the back being stained or coloured dead black. The sections can first of all be lightly marked in with pencil, and then complete all the parts of the same colour first. Crusoe enamel is quite suitable and bright colours at 2d. a tin are obtainable from Hobbies Ltd.

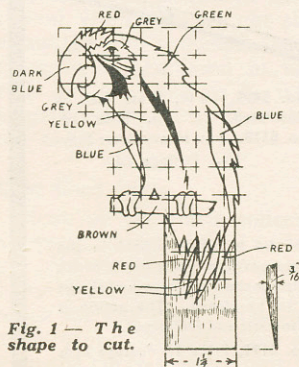


Fig. 1—The shape to cut.

MISCELLANEOUS ADVERTISEMENTS

The small "to sell" or "wanted" announcements appearing below are accepted from readers who want to sell anything except fretwork goods, or from usual advertisers of bargains of interest. The advertisements are inserted at the rate of 2d. per word. Name and address are counted, but initials or groups, such as E.P.S. or £1/11/6 are accepted as one word. Postal Orders and Stamps must accompany the order. We cannot guarantee any date for these to appear, but they will be inserted in the earliest issue.

PATENTING Inventions. Advice free.—King's Patent Agency Ltd., 146H Queen Victoria St., London, E.C.4.

TROUSER PRESS and Stretcher for 10/-, carriage forward. A complete parcel to build your own from Hobbies Ltd., Dereham.

DRUM HEADS, 5/- or 7/- post, hoop lapped free.—"Potters," 36, West Street, London, W.C.2.

HAWAIIAN GUITAR! Make your own from Hobbies' design and materials. Write for details to Hobbies Ltd., Dereham.

JIG-SAW PICTURES, Glue, Wood, etc. Hobbies supply all you need at low prices.—Hobbies Ltd., Dereham.

BUMPER PACKET FREE! Contains 100 different Stamps, including Pictorial, Scarce Stamp, Map, Ship, Native, Air mail, etc. Request approvals.—J. F. Smith, 19, Rougemont Avenue, South Morden, Surrey.

ELECTRIC TABLE LAMPS. Make your own! Hobbies supply turned wood standards as low as 9d.—Hobbies Ltd., Dereham.

RETIRAL SALE. FREE, if Sheets asked during April, 100 different, includes Confederate States, St. Helena, Sierra Leone, British 10d. Blue. Cat. 1/.—H. McAuslan, Stepps, Glasgow.

25/- buys Hobbies Gem Fretmachine. Cuts wood up to $\frac{3}{4}$ in. thick. A marvel of value. Write for details to Hobbies Ltd., Dereham.

MOVIES AT HOME. How to make your own Cinema Projector. Particulars free.—Moviescope (H), 116, Brecknock Road, London.

DOWELLING, $\frac{1}{4}$ in. to 1 in. from 1d. per 3ft. length.—Hobbies Ltd., Dereham.

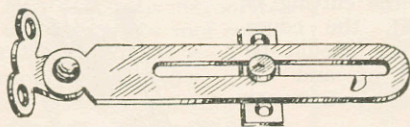
THE SMALLEST PRACTICAL AEROPLANE. A new thrill. Particulars with photo free.—Technicalities (B), 8 Breams Buildings, E.C.4.

STOP! Special Lot!! Ball-bearing dynamos, cheap. 12v. 8 amp. 15/-; 20v. 10 amp. 25/-; enclosed charging—below.

50 SETS! Model petrol motor Castings, part-machined 9/9, list 3d.—Butler's Factory, Wade Street, Little-over, Derby.

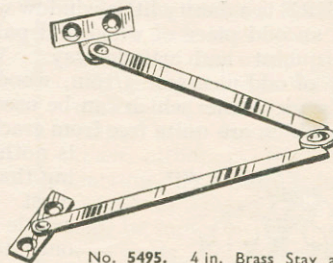
NOTICE.—Our Deposit System is probably of use to those desirous of seeing the goods before they buy. The would-be Buyer sends us his money and we write the Advertiser and give him the address of the person who wishes to buy. The goods are sent by the Advertiser to the Buyer on approval and when the purchaser gives us his consent we will forward the money to the Advertiser in payment of the goods which the purchaser will keep. In addition to the value of the goods, a Deposit Fee of 1/- must be enclosed to cover cost of our correspondence. Each party in the transaction will pay carriage one way. We cannot accept goods for exchange, nor any money for goods valued less than 5/-. All money should be sent by Registered Letter, but we cannot be responsible for any damage or loss incurred. All letters to be addressed to the Advertisement Manager, Hobbies Ltd., Dereham, Norfolk.

Cabinet Lid Stays



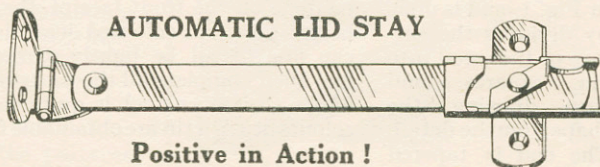
Just the thing for Gramophone Lids, Cabinets, etc., 5 inches long. Price 10d. each. Postage 1½d. Cheaper quality, also 5ins. long, 4½d. Postage 1½d.

Next time you want a lid stay try one of these! They are nicely finished and good value at the prices quoted. The automatic stay is positive in action—with nothing to get out of order.



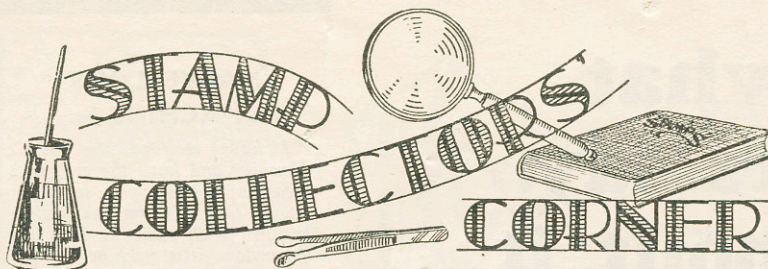
No. 5495. 4 in. Brass Stay as illustrated. 4d. Post 1½d.
No. 6178. 3 in. Heavy Brass Stay. 1/- Postage 2d.

Buy from Hobbies own Branches or direct from Hobbies Limited, Dereham.



Positive in Action!

The lid is securely held in the open position, yet a slight touch releases the mechanism and allows it to be closed. The action is automatic and fool-proof.
No. 6191, Price 1/- Postage 2½d.



QUITE a lot has been written in the Press lately about the air connections within the Empire. Interest seemed to start just before Christmas 1934, when Imperial Airways, Ltd., announced the opening of the air-mail to Australia. The first mail



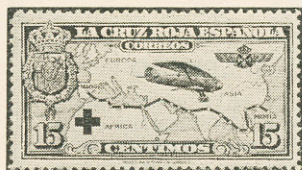
Blériot's First Crossing.

was sent from Croydon on December 8th and the letters were delivered in Australia before Christmas day.

Have you ever contemplated making such a trip yourself? Possibly you would like to, but enquiry about the price would make you decide that such a trip was not for you. Actually if you wish to go to Singapore (the full distance to Australia is not yet open for passengers), it would cost you about £180.

That sounds an enormous amount, but remember that the distance is very nearly 8,500 miles, so the cost per mile works out at less than the usual charge for a taxi cab. And, moreover, this charge includes the cost of food and accommodation for eight and a half days.

Well, one thing stamp collectors are able to do which others cannot, is to look through their album and so see some of the sights and curiosities which the lucky



The route followed.

traveller would encounter on this journey, because many of these are used for the main theme of stamp designs.

In point of fact, stamps may be considered as miniature advertising posters pointing out beauty spots which visitors should see.

LET us set out on the journey through the stamp album from London following the route which Imperial Airways take.

First let us see the craft on which we shall travel part of the way. This is shown to us on the 1933 stamp from Egypt, value 5 mils., and is one of the set of three issued in connection with the International Aviation Congress held at Cairo.

The air liner shown is the 'Atlanta' which carries a Captain, a First Officer, and Wireless Operator, and has accommodation for eleven passengers. There are two mail and freight holds. The span of this liner is 90 feet, the length 72 feet, and the height just



Corinth Canal.



The Parthenon.

over 16 feet. She weighs 9 tons when fully loaded, has four engines of 340 horse power, and a maximum speed of 155 miles per hour.

Having seen one of our craft we want to know our route. Well, two stamps will show us this. The first is the French stamp issued last year to commemorate the 25th anniversary of Louis Blériot's Crossing of the Channel in 1909.

The aeroplane he used was equipped with a 25 h.p. engine; the one that we shall use from Croydon to Le Bourget has four engines each developing 555 h.p. and accommodation for 38 passengers with a Captain, a First Officer, a Wireless Officer and two Stewards.

That stamp will serve as a chart until we reach Le Bourget, which is the aerodrome for Paris,

BY AIR TO SINGAPORE

Follow the Stamp Album from London to the East and see what an interesting trip it is.



A picture of "Atlanta."

and once we reach that city we may see some sights such as the Arc de Triomphe, which are also illustrated on the stamps of France.

The next stage of the journey is not accomplished by air, but by train to Brindisi, which will be found on the heel of Italy. This place can be found on the 1926 stamp from Spain which commemorates the Madrid to Manila flight. The route which is marked on this stamp is not quite the one which we shall follow, but we shall use this map for ours which is north of the Mediterranean from Brindisi to Athens.

Naturally at this point we shall turn to the pages set apart for Greece, and there we shall see two of the sights depicted on stamps which more fortunate ones will see from the air.

The first is the Corinth Canal—our view on the 5 l. stamp of the 1927 issue is from the water line with a ship coming towards us. Theirs from above will surely be two straight lines joining the Gulf of Corinth and the Gulf of Aegina.

We also see on the 2 dr. a view of the Parthenon standing on that rocky crag called the Acropolis. The Parthenon was the Temple of Minerva (the goddess of wisdom, war, and liberal arts), and was built in 438 B.C. It is one of the purest examples of Doric architecture one can find.

We are for this part of the journey in a flying boat, because we now have to turn south and fly over the Mediterranean Sea. Unfortunately, there is not a view of our flying boat on a stamp, although in the pages devoted to Egypt we find an illustration of the famous Dornier X, that is shown on the second stamp of the set first mentioned.

(To be Continued.)

Read what Users say about it....

It was a bold decision we made in August 1934! "Never mind about cost of production" we said to our works manager. "We are going to sell the 'Gem' Machine for 25/- so that every worker in wood may enjoy the many advantages which only a reliable fretmachine can give him." Our decision has met with an overwhelming response from workers everywhere!

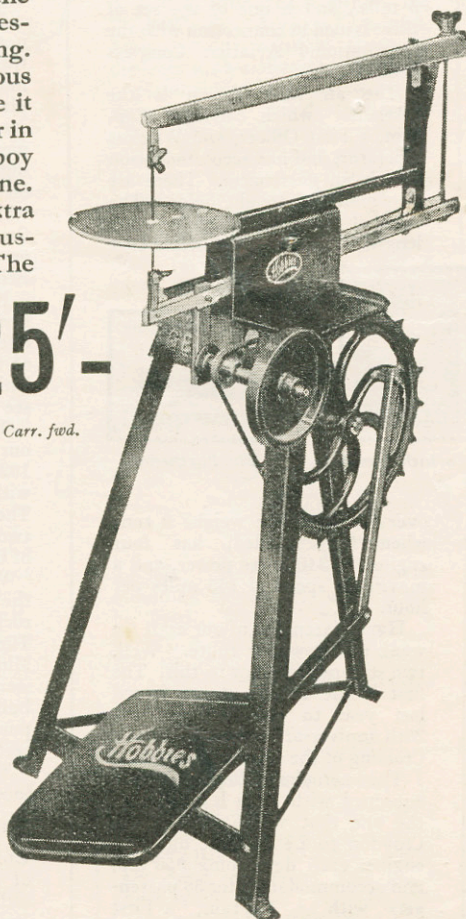
How do we do it for the money? That's the question everybody is asking. Frankly, it is an ambitious plan on our part to make it possible for every worker in wood—every man and boy—to own a fretmachine. Our reward lies in the extra thousands of satisfied customers we shall make. The "Gem" is a thoroughly sound, practical machine. With it, work is easier—output is bigger. It cuts wood up to $\frac{3}{4}$ in. thick almost without effort. NOW... you can buy it at a price no higher than what you would have to pay for an ordinary set of tools!

Buy NOW!

Don't deny yourself a day longer. Go to your nearest Hobbies Branch or order direct from Hobbies Ltd. Dereham, Norfolk. Easy payment terms:—4/6 down and 12 weekly payments of 2/-.

25'-

Carr. fwd.



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"I have received the Gem Machine and have the greatest pleasure in writing to let you know that I am perfectly satisfied with same as it is a marvellous little machine for the money."

W.E.P. Burton-on-Trent.

MORE THAN PLEASED!

"Please find enclosed P.O. for 2/- being instalment for Gem Fretmachine I received from you. It arrived quite safely and I am more than pleased with it. I did not think that such a machine could be made at the price. I already have an order for the Fort, which design was given in Hobbies Catalogue."

P.M. Warrington.

REMARKABLE HOW WE DO IT!

"I enclose P.O. for 2/- as the second instalment for the Gem fretmachine which has arrived safely. I am very pleased with it and it is indeed remarkable how you can produce so fine a machine for so small a price."

T.J.S. Maldon.

WONDERFUL MACHINE!

"I am very pleased with the Gem machine and think that for such a low cost it is a wonderful tool. Hoping in the near future to be able to give you another order."

S.M. Dudley.

SPLENDID!

"Very many thanks for a splendid reliable machine and to your goodness in trusting me to pay for same on your very easy payment plan."

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GEM MACHINE

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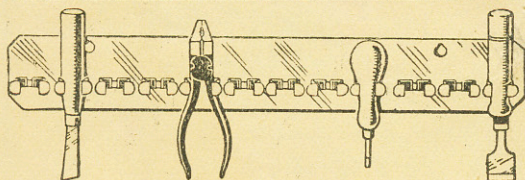
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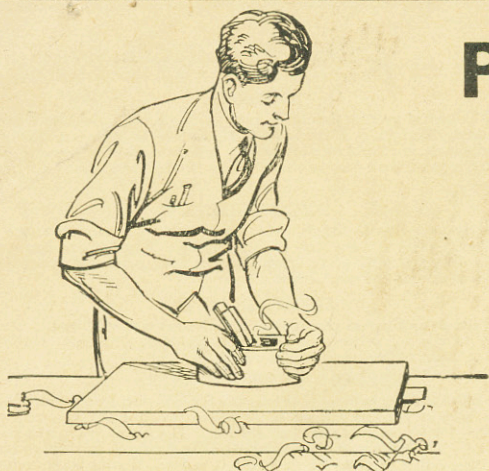
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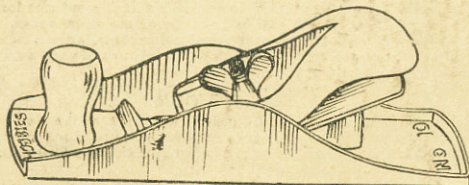
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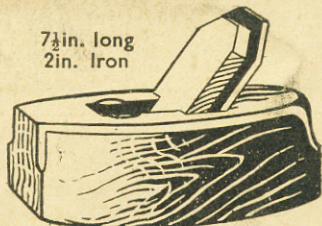


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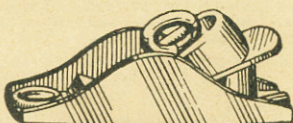
7 $\frac{1}{2}$ in. long
2 in. Iron

SMOOTH- ING PLANE

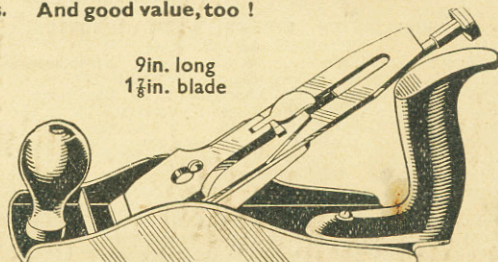


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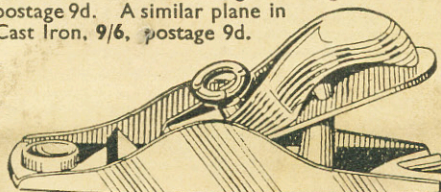
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9 in. long
1 $\frac{7}{8}$ in. blade

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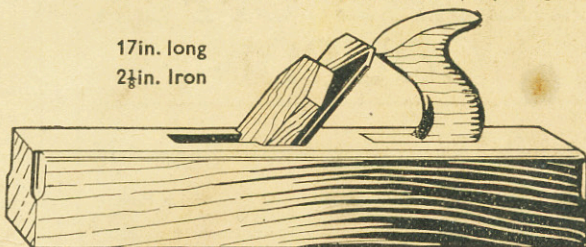
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